

Curriculum Vitae Summary

Robert L. Shepard, Ph.D.

Founding Executive Director
Science and Engineering Alliance, Inc. (SEA)
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Born:	December 25, 1947
Married:	August 22, 1969 to Alzonnia Wiggins
Children:	Shawn E. (two grandchildren), Robin N., Pamela A.
Residence:	13801 Bethpage Lane, Silver Spring, MD 20906

Career: Science and Engineering Alliance, Inc. 1990-Present;
Shepard Research and Analysis, 1989-Present;
U.S. Nuclear Regulatory Commission, 1975-1990;
INFRASURFACE, INC., 1981-1989;
Howard University, 1984-1988;
Celanese Corporation (Hoechst Celanese), 1973-1975;
U.S. Naval Research Laboratory, Summers - 1971 and 1972

Education: Ph. D. - Howard University, 1973;
M.Sc. - Howard University, 1971;
B.Sc. - St. Augustine's College (NC), 1969.

Research

Interest: Food Chemistry investigations of lesser-known plants from the tropics and subtropics of Africa. Principal thrust is on characterizing the chemical profile of crude protein from underutilized, but potentially edible plants.

Publications: Author/Co-Author of 16 technical papers involving chemical studies of underutilized plant material. Author of 10 professional consultant reports on technological development in Africa and greater participation of underrepresented groups in science and technology.

Recent

Honors: Most Distinguished Ph.D. Alumnus from Howard Chemistry Department
Exhibiting Leadership for the 21st Century, Howard University Graduate
School of Arts and Sciences, 1998

21st Century Trailblazer Award, City Council of Jackson, Mississippi, 1998

CURRICULUM VITAE

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CURRENT ADDRESS:

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DEGREES AWARDED:

Ph.D., Physical Organic Chemistry, Howard University (1973)
M.Sc., Physical Organic Chemistry, Howard University (1971)
B.Sc., Chemistry, St. Augustine's College, Raleigh, N.C. (1969)

EXPERIENCE:

Executive Director, Science and Engineering Alliance, Washington, D.C.-- Develops & implements new initiatives to enhance science & engineering education at HBCU institutions (1990 - present)

Technical Assistant to Director, Office of Nuclear Research, Nuclear Regulatory Commission (NRC), Washington, D.C.-- Assisted with implementation of NRC's \$100 M research program (1988 - 1990).

Visiting Scientist, Chemistry Dept., Howard University, Washington, D.C.-- Established an International Research Program focused on characterizing the chemistry of lesser-known plants growing in the tropics of Africa (1984 - 1988)

Project Manager, Nuclear Waste Isolation Program, Office of Nuclear Research, NRC, Washington, D.C. -- Technical leadership on investigating radionuclide transport via groundwater during the storage of high-level nuclear waste in geologic repositories (1981 - 1984).

Project Manager, Material Control Program, Office of Nuclear Research, NRC, Washington, D.C. -- Managed program that developed methods for safeguarding nuclear material (1977 - 1981).

Research Analyst, Material Control Section, Office of Nuclear Material Safety, NRC, Washington, DC Evaluated the effectiveness of industry's measurement and quality control systems against regulatory standards for safeguarding special nuclear material (1975 - 1977).

Research Chemist, Analytical Chemistry Department, Hoechst Celanese Corporation, Charlotte, NC- Headed the X-ray Diffraction and Atomic Absorption Laboratory (1973 - 1975).

Research Chemist, Analytical Chemistry Division, Naval Research Laboratory, Washington, D.C.-- Laboratory assistant for development of analytical methods to evaluate performance of Air Force jet fuels JP-5 & JP-7 (Summers 1971 & 1972).

HONORS & SPECIAL ACTIVITIES:

Alumnus Award, Howard University Graduate School of Arts and Sciences, (1998)
21st Century Trailblazer Award, City Council of Jackson, Mississippi, (1998)

ORGANIZATIONAL AFFILIATION:

Member, Numerous Boards and Commissions
Member, National Organization of Black Chemists & Chemical Engineers
Member, The New York Academy of Sciences

SCIENTIFIC PUBLICATIONS:

Book:

Remember the Beginning: The Science and Engineering Alliance Story, R.L. Shepard, Science & Engineering Alliance, Inc. Washington, DC (In progress)

Articles:

(PRIMIARILY PROPOSAL WRITING SINCE 1995)

Shepard, R.L., Morris, J.B., Ayorinde, F.O., Afolabi, A.O., Oke, O.L. and Ologunde, M.O. Amino Acid Composition of 15 Amaranthus Species from Tropical Agriculture, *Amaranth Newsletter*, **4**:12 (1994).

Afolabi, A.O., Shepard, R.L. and Oke, O.L. Chemical Evaluation of Exotic Grain Amaranth Seeds Planted in West Africa. *J. Trop. Agri.* **69**:106 (1992).

Ologunde, M.O., Ayorinde, F.O., Shepard, R.L., Afolabi, A.O. and Oke, O.L. The Sterols of Seed Oils of *Vernonia*, amaranth spp. *J. Fd Sci. Agri.* **58**:221 (1992).

Shepard, R.L. *Vernonia galamensis*: Underutilized Plant with Food/Feed Potential, *SEA Tran.*, 1:3 (1991).

Ologunde, M.O., Akinyemiju, O.A., Ayorinde, F.O., Afolabi, A.O., Shepard, R.L. and Oke, O.L. A Bioavailability to Rats of Iron from Fortified Grain Amaranth Flour, *J. Fd. Sci. Tech*, **26**:493 (1991).

Ologunde, M.O., Ayorinde, F.O. and Shepard, R.L. Chemical Evaluation of Defatted *Vernonia galamensis* Meal, *J. Am. Oil Chem. Soc.*, **67**:92 (1990).

Shepard, R.L., Amaranth Grain As a Food Source, Howard Press: *New Directions Magazine*, **16**:1, 22-27 (1989).

Ayorinde, F.O., Powers, F.T., Streete, L.D., Shepard, R.L. and Tabi, D.N. Synthesis of Dodecanedioic Acid from *Vernonia galamensis* Oil, *J. Am. Oil Chem. Soc.*, **66**:92 (1989).

Shepard, R.L., Ayorinde, F.O. and Ologunde, M.O. Investigation into the Chemistry of *Vernonia galamensis* Meal, *NOBCCHE Proc.*, **16**:216 (1989).

Ayorinde, F.O., Ologunde, M.O., Nana, E.Y., Powers, F.T., Afolabi, O.A., Oke, O.L. and Shepard, R.L., Determination of Fatty Acid Composition of Amaranthus Species, *J. Am. Oil Chem. Soc.*, **66**:812 (1989).

Shepard, R.L., Ologunde, M.O., Taylor, B., Afolabi, O.A., Ayorinde, F.O. and Oke, O.L. Chemical Evaluation of Grain Amaranth Growing in Nigeria, *J. Food Agric.*, **2**:46 (1988).

Shepard, R.L., Ayorinde, F.O., Ologunde, M.O., Afolabi, O.A. and Oke, O.L. Agronomical and Chemical Studies of High-Yielding Lines of Grain Amaranth: A Potential Food Source for West Africa, *Technical Report (Final)*, AID/CR-8801 USAID (1988).

Ayorinde, F.O., Clifton, J., Afolabi, A.O. and Shepard, R.L. Rapid Transesterification and Mass Spectrometric Approach to Seed Oil Analysis, *J. Am. Oil Chem. Soc.*, **65**:942 (1988).

Ayorinde, F.O., Osman, G., Shepard, R.L. and Powers, F.T. Synthesis of Azelaic Acid and Suberic Acid from Vernonia galamensis Oil, *J. Am. Oil Chem. Soc.*, **65**:1774 (1988).

Shepard, R.L., Ayorinde, F.O., Ologunde, M.O., Afolabi, A.O. and Oke, O.L. Agronomical and Chemical Studies of High-Yielding Lines of Grain Amaranth: A Potential Food Source for West Africa, *Technical Report (Interim)*, HUDC87-01, USAID (1987).

Afolabi, A.O., Shepard, R.L., Oke, O.L., Grissom, F.E. and Ayorinde, F.O. Amino Acid Composition of Grain Amaranthus cruentus (West African Genus): A Potential Substitute in Cereal-Based Foods, *Chemical Society of Nigeria*, Lagos, Nigeria (1986).

Cranwell, R.A. and Shepard, R.L. Program to Develop A Methodology for Risk Assessment of Nuclear Waste Isolation in Geologic Media, *Technical Report*, Sandia National Laboratory and U.S. Nuclear Regulatory Commission (1983).

Shepard, R.L. and Thomas, C.C. Methods for Predicting Process Holdup to Enhance Material Accountability, (*Proc.*) of 3rd European Nuclear Material Safeguard Research and Development Conference, F.R. Germany (1981).

Shepard, R.L. Some Thoughts on Bias Corrections in the Measurement of Nuclear Material, *Technical Position Paper*, U.S. Nuclear Regulatory Commission, Washington, D.C. (1976).

Shepard, R.L. A Design to Minimize Exposure to Scattered X-ray Radiation, *X-ray Spec.*, **4**:202 (1975).

Shepard, R.L. Rheology Studies to Predict Polymeric Characteristics of Cellulose Acetate and Cellulose Tracetate, *Technical Report*, Hoechst Celanese Corp., Charlotte, N.C. (1974).

Shepard, R.L. Methods Development for Analysis of Carcinogens in Synthetic Smoking Materials, *Technical Report*, Hoechst Celanese Corp., Charlotte, N.C. (1974).

Boss, B.D. and Shepard, R.L. Analysis of n-Praffin Oxidation Products in the Presence of Hydroperoxides, *Anal. Chem.*, **45**:2388 (1973).

Shepard, R.L. Negative and Positive Ion Mass Spectroscopy of Some Substituted Diimides, Ph.D. Thesis, *Proc. of 21st International Conference on Mass Spectrometry and Allied Topics*, San Francisco, CA (1973).

OTHER PROFESSIONAL REPORTS:

Shepard, R.L. Positive Ion Mass Spectrometry of Substituted Diimides, M.S. Thesis, Howard University, Washington, D.C. (1971).

Shepard, R.L. (1995) Science and Engineering Alliance (SEA): A Model for Advancement of the U.S. Science and Technology Workforce, *NTA Journal*, 69 2:32.

Shepard, R.L. (1993) The Historical Black Colleges and Universities (HBCUs) in Tomorrow's World, *NOBCCChE News*, 14, 2:8.

Shepard, R.L., A. Mohamed, A. Daniel, Jr., G.C. Washington, III, J. Williams, H. McWhinny, and I.W. Ruffin (1992) High School Teacher Enhancement in the Sciences, *FIPSE Report # P116B11969*, Washington, D.C.

Shepard, R.L. and W.S. Stewart (eds.) (1991) Proceedings: NOBCCChE '91, 18th Technical Conference of the National Organization of Black Chemists and Chemical Engineers, April 1 - 5, 1991, Washington, D.C.

Shepard, R.L. (1989) Food Science and Technology Lecture Series, Final Report, CR-01-89, Department of Chemistry, Howard University, Washington, D.C.

Shepard, R.L. (1988) Program of International Research Partnerships in Science for Africa and the Caribbean: A Three-Year Summary of Research Activities at Howard University, CR-01-88, Washington, D.C.

Shepard, R.L. (Ed.) (1987) Report on African/African-American Scientific Interactions, CR-01-87, National Organization of Black Chemists and Chemical Engineers, April 20 -24, 1987, San Francisco, CA.

Shepard, R.L. (1987) Identifying Minority Scientists, Report to the National Science Foundation's Committee on Equal Opportunities in Science and Engineering (CEOSE), Washington, D.C.

Shepard, R.L. (1986) A Program in Applied Natural Sciences for Developing Countries, CR-01-86, College of Liberal Arts, Howard University, Washington, D.C.

Shepard, R.L. (1986) When Transferring Technology from Developed to Less Developed Countries, CR-02-86, University of California, Berkeley.

Shepard, R.L. (1985) Infrastructure Analysis in Support of Pan African Research, *NOBCCChE News*, 6, 3:1.

Shepard, R.L. et. al. (1984) International Co-operation for African Technological Development, *Report No. 6447*, United Nations Financing System for Science and Technology Development, New York.

Shepard, R.L., and Harvey, W.B. (1983) Blacks in Science, *Umoja Sasa News J.*, 7, 2:20.

Shepard, R.L. (1983) International Trends in the Developments of Biomass as an Alternate Energy Source, CR-01-83, African Regional Center for Technology, Dakar, Senegal.

Shepard, R.L. (1983) The Transfer and Application of Appropriate Technology for Third World Development, CR-02-83, Howard University, Washington, DC.

Shepard, R.L. (1982) Blacks and other Minorities in Mainstream Science and Technology: Approaches and Solutions, *Proc. of 39th NIS/Beta Kappa Chi Joint Meeting*, Washington, D.C.

Shepard, R.L. (1981) Reshaping Technology to Meet the Needs of Africa: A Concept, CR-01-81, Organization of African Unity, New York.

INVITED PRESENTATIONS:

(STOPPED RECORDING IN 1997)

- 1997 The Science and Engineering Alliance: Research Capability, *Winter TRIAD Meeting, Department of Defense, Mesa, AZ.*
- 1997 African Americans in Graduate Education: Addressing Issues and Developing Partnerships for the New Millennium, *Council Of Historically Black Graduate Schools, Winter Meeting, Savannah, GA.*
- 1996 Historically Black Colleges and Universities/Minority Institutions, Small Business Comprehensive Subcontracting Plan and You, *Defense Contract Management District West & Defense Contract Management Command, Phoenix, AZ.*
- 1996 Alliances: One Solution To The Problem of Loss Revenue, *Conference on the Challenge of the Future: Historically Black Colleges and Universities (HBCUs) in the Year 2000 and Beyond, Hampton University, Hampton, VA.*
- 1992 Technology and the Plight of World Hunger and Malnutrition, *Kraft General Foods, Inc., Glenview, IL.*
- 1989 Chemical Evaluation of Vernonia galamensis Defatted Meal, *Association for the Advancement of Industrial Crops Conference, Peoria, IL.*
- 1989 Grain Amaranth: A Potential Weaning Food Source, *Kraft General Foods, Inc., Glenview, IL.*
- 1988 The Potential of Grain Amaranth as a Food Crop in West Africa, *USAID, Washington, D.C.*
- 1987 Using Food Chemistry to Investigate the Food/Feed Potential of Lesser Known Plants Growing in West Africa, *Awolowo University Seminar Series, Ile-Ife, Nigeria.*
- 1987 Correlating the Chemistry and Agronomy of Grain Amaranth Growing in West Africa, *National Research Council Review Committee, Washington, D.C.*
- 1986 Some Recent Investigations of Grain Amaranth, *United States Department of Agriculture/Agricultural Research Service (ARS), Northern Region Research Center, Peoria, IL.*
- 1986 When Designing Technical Assistance Projects in Support of Africa, *Lawrence Hall of Science, University of California, Berkeley, CA.*

- 1985 Infrastructure and Project Design, *Bioenergy Division*, World Bank, Washington, D.C.
- 1984 Energy and the Conflict of Short-Term vs Long-Term Resources & Consumption, *Conference on Minority Involvement in Development*, Africare/Howard University, Washington, D.C.
- 1984 A Link to Africa: Report on the Dakar Conference, *11th Annual Meeting*, National Organization of Black Chemists and Chemical Engineers, Houston, TX.
- 1983 Food and Energy Strategies for the Future, *African Regional Center for Technology*, Dakar, Senegal.
- 1983 The Transfer and Application of Appropriate Technology for Third World Development, *4th Annual Socio-Economic Forum*, Howard University, Washington, D.C.
- 1982 The Importance of Technological Planning for National Development, *African Regional Center for Technology*, Dakar, Senegal.
- 1981 Reshaping Technology to Meet the Needs of Africa: A Concept, *Organization of African Unity (OAU) and United Nations Development Program (UNDP)*, New York, NY.
- 1981 Methods for Predicting Process Holdup to Enhance Material Accountability, *3rd European Nuclear Material Safeguard Research and Development Conference*, F.R. Germany.
- 1981 U.S. NRC Research Program in Controlling Nuclear Material, Standards Working Group, *International Atomic Energy Agency (IAEA)*, Vienna, Austria.
- 1980 Improvements in Measuring Nuclear Material, *2nd European Nuclear Material Safeguard Research and Development Conference*, University of Edinburg, Scotland.
- 1980 Development of Standards for International Nuclear Safeguards, *Standards Working Group*, Joint Research Center, Ispra, Italy.